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POLITICAL AND SOCIOLOGICAL

'KYODO' OUTLINES LDP GENERAL ELECTION DILEMMA

Tokyo KYODO in English 0539 GMT 8 Sep 79 OW

[Article by Hidesuke Nagashima]

[Text] Tokyo, Sept 8, KYODO--How many seats would the ruling Liberal-Democratic Party have to win in the House of Representatives in the October 7 general election to claim a victory?

A feud is simmering over that question between Prime Minister Masayoshi Ohira and his rivals in the intraparty power struggle.

True to his cautious political style, Ohira has remained noncommittal about the question but his righthand man indicates he sets a low goal, refusing to overreach himself.

Ohira would face a serious challenge to his power if he tried to do more than he can and failed.

On the other hand, Ohira's intraparty rivals set a high victory target, hoping to take advantage of his failure to accomplish it in their bid to unseat him as LDP president and prime minister.

LDP Secretary General Kunikichi Saito, a leading member of the Ohira faction in the party, says the victory goal should be 268 seats "plus or minus four."

But former Prime Ministers Takeo Fukuda and Takeo Miki, Ohira's archrivals, both say the LDP should aim for more than 280 seats.

The LDP would gain a simple majority by winning 256 seats in the 511-seat lower house but would not have a working majority unless it won 271 seats.

That number of seats is needed for the LDP to hold a majority and chairmanship in each of the 16 lower house standing committees.

The LDP won only 249 seats in the previous general election in 1976 and barely maintained a simple majority after 12 independent conservatives joined the party on being elected.

However, opposition lawmakers outnumbered LDP members in six standing committees, including the budget committee where the opposition led 25-24, giving the LDP serious trouble in legislative activities.

With this in mind, Ohira has often mentioned the LDP's quest for a working majority as a justification for dissolving the lower house for a general election.

Assuming that a fair goal for an LDP victory is 271 seats, a question arises as to whether it should include independent conservatives who join the LDP on being elected.

Three recent seceders from the New Liberal Club, a splinter group of the LDP, are reported planning to join the LDP if they are elected.

Another question involves former Prime Minister Kakuei Tanaka and former Transport Minister Tomisaburo Hashimoto, who lost their official party memberships after being implicated in the Lockheed Aircraft sales scandal but who still retain their strong influence in the party.

LDP Secretary General Saito has not said whether his goal of 268 plus or minus four covers these conservatives.

Political analysts say that realistically speaking, if the LDP won 268 seats aside from independents later joining the party, Ohira could claim a victory and his foes would have a hard time unseating him. Otherwise, Ohira would face a growing challenge to his power.

If that goal was accomplished, the LDP could expect to boost its strength further in the House of Councillors election next July and Ohira would have a good prospect of being reelected to LDP presidency in the party presidential election in December 1980.

CSO: 4120

MILITARY

DEFENSE AGENCY SUBMITS FY '80 BUDGET REQUESTS

Tokyo JPE AVIATION REPORT-WEEKLY in English 5 Sep 79 pp 6-10

[Text]

The Japanese Defense Agency (JDA) will request appropriations of ¥2,295,900 million for FY 1980, up 9.6 percent over the current fiscal year. The proposed budget contains ¥2,008,600 million for the Self-Defense Forces and JDA, and ¥287,400 million for the Defense Facilities Administration Agency (DFAA).

Major military items which JDA plans to procure in FY '80 include: 34 McDonnell Douglas F-15s, 10 Lockheed P-3Cs, 60 Model 74 tanks, 34 155mm self-propelled howitzers, three 2,900-ton all gasturbine DD destoryers and a 1,400-ton combined diesel or gasturbine DE escort frigate.

For procurement of antiair missile systems, JDA will request ¥70,638 million for improved Hawks to equip two GSDF groups, and ¥2,060 million for Nike-Js to equip one ASDF unit.

Concerning new items, JDA will request ¥1,600 million for procurement of communications buffer systems to link the Grumman E-2C with the BADGE air defense system and ¥468 million for research on a new system to replace the BADGE. Funds will also be requested for research of Nike and Hawk replacements and for expansion of microwave defense networks.

The Technical R&D Institute (TR&DI) will request ¥20,241 million for new R&D items, up 29 percent over this fiscal year. A breakdown of the FY '80 defense budget request follows:

*Comparison with previous years

- unit: ¥100 mil.	FY '78 Allocation	FY '79 Allocation	FY '80 Requests
Defense Agency allocations and requests	19,009	20,944	22,959
% up from previous year	12.4	10.2	9.6
1. JDA & SDF	17,091	18,526	20,086
% up from previous year	11.3	8.4	8.4
2. DFAA	1,918	2,417	2,874
% up from previous year	23.7	26.0	18.9

* Organization-by-organization breakdown in the expenditures account

- unit: ¥ 1mil.	FY '80 Requests(A)	FY '79 Allocations(B)	Up (A) - (B)	Up (A) / (B) %
GSDF	877,124	859,871	17,253	2.0
MSDF	523,703	454,004	69,700	15.4
ASDF	542,083	482,653	59,430	12.3
sub total	1,942,910	1,796,528	146,382	8.1
Internal Bureaus	7,904	6,845	1,059	15.5
Joint Staff Council	804	803	-	-
Defense Staff College	816	897	-81	-9.0
Defense Academy	9,506	8,677	829	9.6
Defense Medical College	10,589	8,591	1,998	23.3
Technical R&D Institute	32,310	26,843	5,467	20.4
Central Procure- ment Office	3,721	3,438	284	8.2
sub total	65,650	56,094	9,556	17.0
Total	2,008,560	1,852,622	155,938	8.4

*Aircraft

- unit: V1 mil.	Q'ty	FY '80 Expenditure	Follow-on Disbursement	Total Spending
<u>GSDF</u>				
OH-6D helicopters	12	135	1,974	2,109
HU-1H helicopters	7	253	3,169	3,423
V-107A helicopter	1	86	987	1,073
LR-1 turboprops	3	90	1,262	1,352
TL-1 trainers	2	21	280	301
sub total:	25	585	7,673	8,257
<u>MSDF</u>				
P-3C ASW aircraft	10	1,368	96,452	97,820
US-1 A SW flyingboat	1	289	5,746	6,025
TC-90 trainers	2	78	694	772
HSS-2B helicopters	11	947	26,411	27,358
S61A helicopter	1	74	1,691	1,765
sub total:	25	2,756	130,984	133,740
<u>ASDF</u>				
F-15 fighters	34	2,469	290,421	292,890
F-1 support fighters	5	500	10,247	10,748
T-2 advanced trainers	13	1,072	26,706	27,778
T-3 primary trainers	10	322	1,289	1,611
MU-2 rescue aircraft	2	70	873	943
V-107A helicopters	3	333	3,778	4,110
sub total:	67	4,767	333,970	338,080
Total:	117	8,107	471,970	480,077

*Class "A" army equipment

- unit: ¥1 mil.	Q'ty	FY '80 Expenditure	Follow-on Disbursement	Total Spending
Model 64 rifles	5,100	0	724	724
Model 62 machine guns	51	0	91	91
Model 74 machine guns	38	0	91	91
84mm recoilless guns	200	0	372	372
Model 64 antitank missile launchers	4 sets	0	73	73
Model 79 antiship/tank missile launchers	9 sets	0	521	521
Model 64 81mm mortars	65	0	159	159
Model 75 155mm self- propelled howitzers	34	0	9,111	9,111
Model 75 130mm multiple- loaded rocket launchers	9	0	1,682	1,682
Model 75 wind measuring equipment	3	0	326	326
L-90 35mm AA machine gun	1 set	0	634	634
Model 74 tanks	60	0	20,002	20,002
Model 73 APCs	9	0	872	872
Model 78 tank recovery vehicles	6	0	1,444	1,444
Model 78 snow vehicles	30	0	672	672
Model 70 pontoons	2	0	281	281
Total:		0	37,058	37,058

*MSDF shipbuilding

- unit: ¥1 mil.	Q'ty	FY '80 Expenditure	Follow-on Disbursement	Total Spending
2,900-ton DDs	3	2,495	92,893	95,388
1,400-ton DE	1	822	16,706	17,528
2,200-ton SS	1	756	28,824	29,590
440-ton MSCs	2	199	8, 89	8, 269
3,500-ton AS	1	219	16,437	16,655
sub total	8	4,500	163,050	167,550
Auxiliary ships	7	941	195	1,136
FRAM program		529	9,800	10,329
Total:	15	5,970	173,044	179,014

*Military R&D

- unit: ¥1 mil.	Number of R&D items	FY '80 Expenditure	Follow-on Disbursement
Guided weapons	7	873	2,383
Electronic equipment	20	3,765	6,152
Firearms and vehicles	9	2,963	1,101
Ships and underwater weapons	7	1,779	5,386
Aircraft	10	1,912	5,762
Total:	53	11,292	20,784

MILITARY

E-2C PURCHASE CONTRACT SIGNED

Tokyo JPE AVIATION REPORT-WEEKLY in English 12 Sep 79 pp 5-6

[Text]

The Japanese Defense Agency (JDA) announced last week the signing of a government-to-government contract with the US Department of Defense on purchase of four Grumman E-2C Hawkeye early warning aircraft for the Air Self-Defense Force (ASDF). The four aircraft will be delivered by 1983, according to JDA.

The US Department of Defense will place a blanket order in September for ten aircraft including those which will be sold to Japan through the FMS (foreign military sales) channel.

The funds earmarked for the purchase of the E-2Cs in the FY 1979 national budget had been "frozen" after the alleged sales irregularities involving Grumman and McDonnell Douglas came under Diet (Parliament) scrutiny. The funds were released by the Speaker of the House of Representatives and the President of the House of Councillors in July.

JDA had sent officials to the United States to speed up contract procedures so that the four aircraft required for the ASDF would be included in the American blanket order.

CS0: 4120

MILITARY

SDF SAM SURVEY MISSIONS IN UNITED STATES

Tokyo JPE AVIATION REPORT-WEEKLY in English 12 Sep 79 pp 6-7

[Text]

The Self-Defense Forces dispatched two survey missions for a series of visits to surface-to-air missile systems manufacturers and military installations to collect data and information for studies on future SAM systems. The ASDF and the GSDF each require data to aid in selection of replacements for the Nike and Hawk missiles.

*ASDF Mission

The ASDF's five-man mission left Tokyo in early September on a 44-day trip through six countries including the US. The mission is headed by Maj. Gen. Takeshi Kato, Deputy Director of Personnel and Training Dept., Air Staff Office. It will be divided into two teams.

The Nike Replacement SAM System Investigation Team comprises Kato and two staff officers of the SAM-X planning section, Defense Dept., Col. Kinji Takizawa and Maj. Takezo Aizawa. The team will visit Belgium, West Germany, the UK, and the US. In Europe, the team will visit NATO headquarters, the West German Defense Ministry, the West German Air Force Staff Office, the UK Department of Defense, and such military installations and British Aerospace.

On September 13, the team will fly to the US. Visits will be made to the Pentagon, Departments of Navy and Army, DARCOM as well as offices of Raytheon and Martin-Marietta related to the Patriot Project. Between October 1 and 3, the team will inspect such military installations as MCOM, Air Defense Center, Air Defense School, and White Sands missile range. Offices of Hughes Aircraft, Litton Industries, and McDonnell Douglas will be visited in the final leg of the US tour.

Another team of the ASDF, named the Base Air Defense SAM Investigation Team, comprises two men---Col. Koichi Hasegawa, chief of Defense Section, and Lt. Col. Masaki Izumi, chief of Operations Section, of the Defense Dept., Air Staff Office. After visiting Belgium, West Germany, and the UK together

with Kato's team, this team will visit military facilities in Sweden and France. On September 24, the team will proceed to the US. It will visit the Roland missile office before rejoining Kato's team. Hasegawa's team will visit facilities of Boeing, Hughes, and General Dynamics to study SAM systems for base air defense.

***GSDF Mission**

The GSDF mission will collect information on SAM systems to help select a replacement for the Hawk. Col. Masao Ishii, chief of Defense Section, Defense Dept., and Col. Tadao Asai, chief of Guided Weapons Subsection, Weapons and Chemical Section, Equipment Dept., of the Ground Staff Office, will visit the US from September 15 through October 8. The GSDF team will join the ASDF team on September 17 for a joint study on the US Army's operational concepts of SAMs and the status of the SAM-D Patriot program.

The GSDF intends to reequip 4.5 units of the 8.5 Hawk units with Improved Hawk systems during the FY '78 MTDP and a replacement SAM such as the Patriot is being planned for the remaining 4 units.

The joint survey by ASDF and GSDF missions may lead to selection of the Patriot to replace both Nike and Hawk SAMs.

CSO: 4120

MILITARY

MSDF TRYING TO MAINTAIN FLYINGBOAT PRODUCTION LINE

Tokyo JPE AVIATION REPORT-WEEKLY in English 12 Sep 79 p 7

[Text]

The MSDF is requesting ¥133,700 million in the FY '80 draft budget for procurement of 25 aircraft of five types including 10 Lockheed P-3C antisubmarine patrol aircraft and one US-1 sea rescue flyingboat. The MSDF is giving top priority to the P-3C funds but it equally hopes to obtain authorization for one US-1 in order to keep the flyingboat production line open.

The US-1 program for seven flyingboats is scheduled to be completed in FY '81 with delivery of one aircraft funded in FY '79. But, the PS-1 anti-submarine flyingboat program is presently in a critical phase of reassessment of combat capabilities which will be completed by the end of March 1980. Maintenance of a 20 aircraft PS-1 squadron is established policy of the MSDF and, as a prerequisite, the production line must be kept open, according to MSDF sources.

At present the MSDF operates 19 PS-1s. Two are scheduled to be phased out in FY '85 for which replacement flyingboats should be ordered in FY '83. But, the MSDF decided to request funds for one US-1 flyingboat in the FY '80 budget in order to avoid a closure of the production line.

CS0: 4120

MILITARY

MISSILE DEVELOPMENT PROGRAMS FOR SDF

Tokyo JPE AVIATION REPORT-WEEKLY in English 12 Sep 79 pp 7-10

[Text]

The present status and future prospects of guided weapons presently under development by the Technical R&D Institute (TR&DI) of the Japanese Defense Agency (JDA) and those to be developed in the near future are outlined below:

*SSM surface-to-ship missile

This will be designed for use by land-based troops against landing ships. This fiscal year ¥877 million was funded for the SSM program. An offshoot of the XASM-1 antiship missile being planned for the Air Self-Defense Force F-1 support fighter units, the SSM will have a range of about 100 kilometers, incorporating good guidance characteristics.

The development schedule calls for initiation of the systems design including fabrication of the powerplant (jet engine) and the inertial guidance system in FY 1979. A further ¥1,100 million to ¥1,200 million will be appropriated in FY '80 for fabrication of booster rockets and a homing head as well as for continued work on the jet engine. Development costs of the SSM are expected to total ¥12,500 million by FY '84, a report says.

It is expected Mitsubishi Heavy Industries (MHI) which has developed the XASM-1 will be appointed prime contractor in the SSM development program, with other manufacturers such as Mitsubishi Electric Corporation (MELCO), Nissan Motor, Mitsubishi Precision, a joint venture of Singer and MELCO, and Japan Aviation Electronic Industry Co. participating as subcontractors. Ishikajima-Harima Heavy Industries (IHI) and Kawasaki Heavy Industries (KHI) may participate in the jet engine development of the SSM program depending on circumstances.

Success in the SSM development program will depend greatly on development of an inexpensive and reliable jet engine and flight control and inertial guidance systems, sources say. There will be no major technical problems concerning

development of the launcher and ground control systems which will begin in FY '81, they say.

***Modified ASM**

The ASDF and the TR&DI plan to begin in FY '81 development of a modified version of the ASM-1 air-to-surface missile which has now entered the final phase of its development. Quantity production of the ASM-1 for ASDF F-1 units will begin next fiscal year.

Instead of the solid propellant rocket which powers its predecessor, the Modified ASM will probably be equipped with a jet engine for flexibility and longer range operations. While a radar guidance system is used on the ASM, the modified version will probably be guided either by television or laser, inside sources say. The Maritime Self-Defense Force is also interested in the development version of the ASM for use aboard the MSDF/Lockheed P-3C patrol aircraft for antiship operations in the future, they say.

***Shoulder-launched antiair missile**

Basic research on the portable surface-to-air missile (SAM) for use with infantry units as well as air base and naval base support units was initiated in FY '77 with participation of MELCO, Toshiba and the KHI - Nippon Electric Co. (NEC) group.

Two of the three types have been selected for further studies. A contract(s) will be awarded for fabrication of the two selected models with ¥426 million funded in FY '79. One of the models will reportedly be equipped with combined image-homing and seeker gyro systems, and the other with the same systems plus an infrared-ray homing system, the report says. One of them will be selected after final evaluation tests. Approximately ¥1,500 million will be requested during the period, FYs '80 - '84, for the portable SAM development program. A prototype is scheduled to be completed in FY '83.

To fill the gap until service entry of this missile, JDA plans to procure foreign developments. Such systems as the General Dynamics Stinger, Short Brothers Blowpipe and the Bofors RBS.70 are expected to be studied, sources say.

***Combat AAM**

Based on experience of the IR-AAM-1 and -2 missile development programs, the TR&DI began basic studies in FY '76 on a new air-to-air missile for dog-fighting missions with ¥76 million funded the same fiscal year.

In FY '77, NEC which had developed infrared-ray homing systems for the IR-AAM-1 and -2 was selected to develop the guidance system. In FY '78,

¥616 million was funded for further development of the missile. MHI, the prime contractor of the previous AAM development programs, was selected for overall systems design and prototype fabrication.

Depending on availability of the AIM-9L production license, the new air combat AAM may be considered for use with the ASDF/McDonnell Douglas F-15 fighter-interceptor in the future.

*Chu-MAT

The TR&DI began basic research on the Chu-MAT medium range precision antitank guided missile development program in FY '76. With ¥522 million funded in FY '78, studies on three types of the inertial guidance system are now being promoted. The successful system will be selected around this fall and a prototype guidance system will be fabricated with ¥260 million funded this fiscal year. An airframe will be fabricated during the period, FYs '80 - '81. A complete prototype missile will be fabricated by the end of FY '84 (end of March 1985). Approximately ¥6,000 million will be requested for the Chu-MAT development program during the same period. It is scheduled to begin operational service around FY '86.

The Chu-MAT will be designed to replace the wire-guided Model 64 MAT and the Model 79 SSM. It will also be suitable for use with the Bell AH-1S helicopter for antitank missions, sources say.

MELCO, Toshiba and the KHI - NEC group are competing for the Chu-MAT development assignment.

*Modified Tan-SAM

The Ground Self-Defense Force and the TR&DI plan to begin basic studies in FY '80 on an improved version of the Tan-SAM-1 short-range surface-to-air missile which is slated to enter the operational inventory of the GSDF in FY '81.

Tentatively coded the Tan-SAM-2, it will be designed for multi missions and have good maneuverability. The Tan-SAM-2 development program is expected to start as an in-house project of the TR&DI next fiscal year since its operational requirements have not been finalized.

CSO: 4120

ECONOMIC

BRIEFS

SHIPBUILDING INDUSTRY IMPROVING—Tokyo, 14 Aug—The long-depressed Japanese shipbuilding industry is now breathing again thanks to rising ship prices and increasing yen-quoted building contracts, according to industry sources. Until recently, low ship prices and the soaring yen had been bearing hard on Japan's shipbuilders. But now, medium-sized shipbuilders, which can operate at relatively low cost, are managing to make ends meet again after a long slump. The sources said most leading shipbuilders have already obtained enough orders to keep them in operation for a year to come. The shipbuilders even tend to refrain from concluding on contracts until they become certain of profit, in view of rising costs of steel. [Hong Kong AFP in English 0140 GMT 14 Aug 79 OW]

CSO: 4120

SCIENCE AND TECHNOLOGY

ANGLO-JAPANESE JOINT AERO ENGINE DEVELOPMENT STATUS

Tokyo JPE AVIATION REPORT-WEEKLY in English 12 Sep 79 p 4

[Text]

Five engineers from IHI, KHI, and MHI are presently visiting Rolls-Royce Ltd., in the UK for detailed discussions on a proposed joint development project for a commercial aero engine of 8 to 9 tons thrust.

Expecting successful conclusion of an agreement among the parties before the end of the year, MITI has included a request for ¥4,366 million including ¥1,723 million on follow-on disbursement in its appropriations in the FY '80 national budget. The funds are to cover 75 percent of the Japanese share of development costs.

A crucial issue to be solved for starting the joint project is the form of Japanese participation. At present three methods are being studied. One is to establish an engine division within the Civil Transport Development Corp. (CTDC), a consortium of Japanese airframe manufacturers currently engaged in Y-X (Boeing 767) joint development and production program with Boeing Commercial Airplane Co. Another is to assign the project to ERAAE (Engineering Research Association for Aero-Jet Engines), a consortium of Japanese aero engine manufacturers which has been engaged in the FJR engine project on government contracts. The third is to set up a new organization by IHI, KHI, and MHI exclusively for the project.

CTDC has expressed strong interest in the project but some industry quarters are reportedly against the idea of using CTDC in the light of the world's traditional division of work between airframe and engine manufacturers.

ERAAE, on the other hand, was established primarily as a research organization and is regarded unsuitable in a project that would cover commercialization and sales activities as this one would.

In any event, the government hopes to see establishment of a civil organization for the project for which it will provide subsidies.

CSO: 4120

SCIENCE AND TECHNOLOGY

SJAC TO SET UP LONG-TERM POLICIES

Tokyo JPE AVIATION REPORT-WEEKLY in English 12 Sep 79 p 4

[Text]

The Society of Japanese Aerospace Companies (SJAC) late last month activated the FY '79 Long-Term Vision Committee for compilation of long-term policies for the industry by the end of the year. The committee adopted two items to promote studies on policy-making --- 1) trends in basic and applied aeronautical technologies and 2) projects for development of civil aircraft of the future. Two subcommittees will make interim reports by October so that the committee will be able to draft a final report before the end of the year.

SJAC in FY '77 completed an extensive survey on the Japanese aircraft industry, followed in FY '78 by a survey on aircraft subcontractors and parts suppliers. Based on results of these studies, SJAC is expected to establish long-term policies for promotion of the industry for submission to government offices concerned.

CSO: 4120

SCIENCE AND TECHNOLOGY

NAL'S JET STOL AIRCRAFT PROJECT FOR FY '80

Tokyo JPE AVIATION REPORT-WEEKLY in English 12 Sep 79 p 5

[Text]

The National Aerospace Laboratory (NAL) is requesting ¥10,900 million in the FY '80 budget including ¥8,200 million on the follow-on disbursement basis, to continue its Jet STOL (short takeoff and landing) aircraft development project. During FY '80, NAL will promote fabrication of the control system as well as the main wings and the front fuselage of the projected STOL aircraft based on the ASDF C-1 Jet transport. Manufacture of four FJR fanjet engines for the aircraft will start and facilities for simulated flights will be constructed.

The Jet STOL aircraft project began in FY '77 with research on component technology. Manufacture of the high-lift device comprising the special engine nacelles and the USB (upper surface blowing) flaps started earlier this year.

CSO: 4120

SCIENCE AND TECHNOLOGY

MAJOR SPACE DEVELOPMENT PROJECTS FOR FY '80

Tokyo JPE AVIATION REPORT-WEEKLY in English 12 Sep 79 p 10

[Text]

The Space Activities Commission late last month finalized draft budget requests for FY 1980 totaling ¥106,675 million, a 7.3 percent increase from the budget authorized for the current fiscal year.

MITI's request totaled ¥358 million, four times the amount of the FY '79 budget, which included ¥233 million for research on the earth resource satellite planned for launching in FY '85. The Science & Technology Agency requested ¥88,967 million, 6.8 percent over the FY '79 budget, including a study on satellite recovery technology (¥45.5 million by the National Aerospace Laboratory (NAL). NASDA's request included ¥12,500 million for satellite tracking and control.

The Ministry of Education requested ¥6,280 million, 7.3 percent less than in FY '79. Although funds for scientific satellite research was doubled to ¥4,205 million, the M-rocket development fund request was reduced to ¥1,252 million or one-third the current level. Expenditures for the SEPAC program in FY '80 were also halved to ¥4,622 million.

The ¥475 million request by the Ministry of Posts and Telecommunications is also down 8.9 percent from the current fiscal year. Funds for initial research on AMES (air and maritime engineering satellite) system total ¥17.6 million.

The Ministry of Transport requested ¥39.7 million, 2.4 percent less than the FY '79 budget, since study on the geostatic weather satellite will end in FY '79.

CSO: 4120

SCIENCE AND TECHNOLOGY

MITI TO BUILD EXPERIMENTAL WEATHER SYSTEM

Tokyo KYODO in English no time given 7 Sep 79 OW

[Text] Tokyo, 7 Sep KYODO—A computer-controlled system capable of reproducing various weather conditions, including chilly skies in winter and sizzling hot days in summer, will be built in downtown Tokyo next year under a yen 760 million (dollar 3.4 million) government project to improve a solar air conditioning system.

The experimental system will be housed in a structure of 20 meters long, 10 meters wide and eight meter high, where solar heat collectors used at residences equipped with solar air conditioning systems will be tested, according to the Ministry of International Trade and Industry (MITI).

MITI hopes to equip 7.8 million homes, one-fifth of the nation's total, with solar heating/cooling systems by fiscal 1990 with a view to saving 3.7 million kiloliters of home heating oil a year.

Although such solar systems are expected to go a long way toward saving existing energy, they have the major disadvantage of being seriously affected by the weather.

MITI plans to lay down standards of performances of solar systems on a region-by region basis according to local weather conditions.

The experimental weather system, with a 38-lamp "artificial sun," is designed to provide basic data for such standards as well as for improving performances of solar energy system.

It is rare equipment found outside Japan in the United States alone, where the National Aeronautics and Space Administration (NASA) has a similar system for research and development of solar batteries used for man-made satellites and space vehicles, MITI officials said.

SCIENCE AND TECHNOLOGY

JAPAN-SAUDI ARABIA SIGN DESALINATION AGREEMENT

Tokyo KYODO in English no time given 8 Sep 79

[Text] Tokyo, 8 Sep KYODO—Japan has signed an intergovernmental agreement with Saudi Arabia to provide technological cooperation on desalination, the Ministry of International Trade and Industry said Saturday.

The agreement was signed in Riyadh between the Saudi Arabian State Saline Water Conversion Corporation (SWCC) and a mission from the Japanese Government.

The signing climaxed two years of negotiations between the two governments.

Under the five-year agreement, the Japanese Government will conduct research on how to adapt the multistage flash distillation process, developed by Japan's Agency of Industrial Science and Technology, to conditions in Saudi Arabia.

The accord calls on the Japanese Government to send experts to Saudi Arabia to help build and operate a pilot desalination plant of that type.

When Masumi Esaki, Minister of International Trade and Industry, visited Saudi Arabia in July, Riyadh renewed its request for technological cooperation on desalination.

The request was initially made by the president of the Saline Water Conversion Corporation when he came to Tokyo in 1975; in 1977, an engineering mission from the MITI's Agency of Industrial Science and Technology visited Saudi Arabia.

The new agreement calls for:

1. Construction of research laboratories at SWCC;
2. Construction of a pilot plant developed by the agency with a drinkable water production capacity of 500 cubic meters in the laboratories;

3. Operation of the pilot plant, chemical and other research and economic evaluation at the research laboratories, and

4. Establishment of a joint council, made up of government representatives and private experts.

The Japanese Government intends to provide funds totaling yen 1 billion for such cooperating over a five-year period. The Saudi Government also is to bear an equal financial burden.

CSO: 4120

SCIENCE AND TECHNOLOGY

NEW AIR PRESSURE, MEMBRANE DESALINATION PLANT TO BE TESTED

Tokyo KYODO in English 1248 GMT 12 Sep 79 OW

[Text] Tokyo 8 Sep KYODO--A new air-pressure and membrane type of desalination plant consuming much less oil than the conventional evaporation type will be put on a trial run shortly, according to the Ministry of International Trade and Industry.

MITI said the demonstration plant with an 800-ton-per-day capacity, just completed at its seaside desalination research institute at Chigasaki, Kanagawa Prefecture, is a "reverse osmosis" type of desalination system resulting from a research and development project in progress since 1974.

The process of "reverse osmosis," now widely applied to water desalination or water purification, is to apply strong air pressure on salt water or dirty water in one membrane-partitioned half of a tank and let only the pure water content of such water ooze into the other half partly filled with pure water.

The level of the pure water is higher than that of the salt or dirty water, and when the air pressure is up to around 25 atmospheres, the ordinary osmosis phenomenon, oozing of the pure water into the salt or dirty water continues until the difference in water levels corresponds to that pressure.

But, when the pressure is doubled or increased further, a reversal of that phenomenon occurs.

Cellulose acetate type of membrane is used as the most suitable kind of the partitioning membrane for its strong resistance against pressure and its high capacity to separate salt from water.

The evaporation type of such desalting plants, now commonly used the world over, consumes much oil for heating up salt water.

But the new plant requires oil only for generating air pressure and, if built on a large scale, will consume on 40 per cent as much oil as the evaporation type. Even the demonstration plant will need only 60 per cent.

In addition, the new plant also promises a further cutdown in its oil consumption because it makes the most of the air pressure applied to the seawater to turn its power turbine.

The new plant has other marked advantages including less salt corrosion of its metal parts than the evaporation type because it is operable under the normal atmospheric temperature, and its compactness.

The new plant is already attracting international attention, with Saudi Arabia requesting the inclusion of development of such plant in the themes of its current joint desalination research program with Japan.

CSO: 4120

SCIENCE AND TECHNOLOGY

FY '80 BUDGET REQUEST WILL INCLUDE INTERNATIONAL ENGINE VENTURE

Tokyo JPE AVIATION REPORT-WEEKLY in English 5 Sep 79 pp 2, 3

[Text]

The aerospace portion of the FY 1980 national budget request which the Ministry of International Trade and Industry (MITI) submitted to the Ministry of Finance toward the end of August included the following:

*Y-X (Boeing 767) development program

Japan will need during the five-year period, FYs '79 - '83, ¥33,600 million as its share for the Boeing 767 development program. Of the sum, 50 percent will be subsidized by the government. In FY '80, Japan's development share will amount to approximately ¥14,900 million. Government subsidies for the Y-X program will amount to ¥7,465 million in FY '80. Of the total of ¥14,900 million, ¥1,800 million will be spent for designing, ¥2,800 million for development and testing, ¥6,500 million for jigs and tools, ¥3,200 million for prototype fabrication, and ¥600 million for management and administration.

*Japan - UK engine collaboration

MITI has decided to provide financial support to the 8 - 9 ton aero engine development program projected to be promoted jointly by the Japanese engine industry and Rolls-Royce Limited of Great Britain. MITI will request ¥2,643 million to be funded in FY '80 for the program. An additional ¥1,723 million will be requested on the follow-on disbursement basis.

Tentatively coded the RJ732, the engine program will be based on technology of the Rolls-Royce RB432 and Japan's FJR710 programs. The Japanese industry and the British firm plan to complete the new engine in eight years, starting from FY '80. The development cost will total approximately ¥140,000 million, which will be borne equally by Japan and the UK, according to MITI sources.

The FY 1980 portion of the development program will amount to approximately ¥7,000 million, half of which will be borne by Japan. Seventy-five percent of the Japanese share of ¥3,500 million (¥2,643 million) will be subsidized by the Government in FY '80, according to MITI planning.

Of the total sum of ¥7,000 million for FY '80, ¥3,600 million will be for basic designing, ¥1,500 million for development and testing, ¥1,400 million for engine fabrication and ¥600 million for development planning.

In addition to the above, Japan and the UK will raise about ¥4,600 million for other research and development activities. Seventy-five percent of Japan's share of ¥2,300 million (¥1,723 million) will be subsidized by the Government on the follow-on disbursement basis, according to MITI's budget request for FY '80.

***Earth resource satellite**

MITI will request ¥233 million in FY '80 for development of an earth resource satellite which it plans to launch in FY '85. Basic studies including research and development of components and equipment, data analysis and research on application technology will be initiated in FY '80.

CS0: 4120

SCIENCE AND TECHNOLOGY

MITI WILL SUSPEND FJR DEVELOPMENT

Tokyo JPE AVIATION REPORT-WEEKLY in English 5 Sep 79 p 4

[Text]

MITI has reportedly decided to suspend the FJR national aero jet engine development project and switch the industry's efforts to the Anglo-Japanese joint project, on which agreement is expected to be concluded before the end of the year.

The FJR engine project under control of the Agency for Industrial Science and Technology, MITI, began in FY 1971. During Phase One ending in FY 1975, prototypes of 5-ton thrust class engines were developed. From FY 1976 the project entered Phase Two for development of 6.5-ton thrust class engines for civil aircraft in six years.

The Anglo-Japanese joint engine development project, on the other hand, is for engines of 8 to 9 tons of thrust. It was proposed by Rolls-Royce Limited of the United Kingdom last year and negotiation has been underway between the British firm and three Japanese aero engine manufacturers, IHI, MHI and KHI. The negotiations indicate that final agreement will be reached before the end of the year for an 8-year joint development project which will be followed by joint sales and servicing programs.

MITI's decision to suspend the FJR project is to avoid financial redundancy and effort for development of competitive aero engines.

Although development of a 6.5-ton thrust engine will be suspended, tests on the 5.5-ton thrust engine prototypes developed during Phase One of the FJR project will continue until FY 1981. The Anglo-Japanese project is expected to start in FY 1980 and MITI is prepared to provide subsidies.

CSO: 4120

SCIENCE AND TECHNOLOGY

FJR ENGINE PROJECT FOR FY '80

Tokyo JPE AVIATION REPORT-WEEKLY in English 5 Sep 79 pp 4, 5

[Text]

The Agency for Industrial Science and Technology, MITI, at the 8th Jet Engine Subcommittee meeting of the Big Technical Development Projects Committee of the Industrial Science Council, in late August, reported on the FJR project and plans for FY '80. ¥2,687 million will be requested in the FY '80 national budget for the project. Fund requests for designing of the Phase Two engine of 6.5-ton thrust was not included in view of MITI's policy to suspend the FJR project for an Anglo-Japanese joint project expected to begin in FY '80.

Highlights of the FJR project for FY '80 follow:

1. General studies for noise reduction:

- 1) Outdoor running tests of a prototype engine equipped with noise-absorbing devices, to measure effects of such devices against crosswind.
- 2) Fabrication and testing of a choke inlet model with a rotating fan section inside, to measure effects of such choke inlets in fan noise reduction during takeoff and landing.

2. General studies for emission reduction:

- 1) Fabrication and testing of a new annular type combustion chamber that will meet proposed emission limits.
- 2) Tests with a sector type combustion chamber on reduction of emission and improvement of durability of the combustors inside the high pressure vessel.
- 3) Measurement of emissions from prototype engines equipped with experimental combustors.

3. Studies on inlet distortion and others:

1) Tests with a prototype engine on inlet distortion to determine optimum intake configuration.

2) Tests of thin-blade front fans on performance and rigidity against distortion. Foreign objects ingestion tests on the fan blades with use of a spin tester.

3) Tests of a high pressure compressor on functional limits and performance against inconsistent inlet air speeds.

4) Tests on thermodynamic characteristics of cooling turbine blades during engine starting and shutoff.

5) Tests on performance and functional characteristics of high-load low-pressure turbines in inconsistent inlet flows.

6) Tests on antiheat and antivibration components for electro-hydraulic engine control systems.

4. Engine test program:

1) Load tests on the engine nacelle, vibration tests on piping and accessories, and thermal fatigue tests on turbine blades.

5. Engine functional tests:

1) Performance and functional tests

2) 300-hour substantiation and fatigue tests under 500 cycle low frequencies.

3) Environmental tests such as water and sand ingestion.

4) High-altitude tests at the National Gas Turbine Establishment in the United Kingdom.

CSO: 4120

SCIENCE AND TECHNOLOGY

Y-XX DEVELOPMENT AND FOKKER SUPER F28 PROJECT

Tokyo JPE AVIATION REPORT-WEEKLY in English 5 Sep 79 p 6

[Text]

Francois Swarttouw, Chairman of Fokker Aircraft Co., is expected to push with renewed efforts his proposal for a joint development project on the Fokker Super F28 jetliner during his visit here scheduled for mid-October. The atmosphere in the Japanese aircraft industry has changed now that development of 100-passenger class aircraft has been recommended as an optimum Y-XX, the next Japanese jetliner program through international collaboration, in the interim report of the Policy Subcommittee, Aircraft and Machinery Industry Council, submitted last month to the Minister of International Trade and Industry (MITI). The Fokker Super F28 is a twinjet short-haul transport for 115-130 passengers. Seating capacity for the Y-XX in the interim report called for "100 - 150 passengers."

MITI will not take special moves to secure funds for the Y-XX project in the FY '80 budget, leaving the initiative for the project up to the Civil Transport Development Corp. (CTDC), a consortium of Japanese airframe manufacturers now engaged in the Y-X (Boeing 767) development program with Boeing Commercial Airplane Co.

The Policy Subcommittee will continue studies on 1) concrete measures for development of civil transport aircraft following the Y-X, 2) organizational structures for development project, 3) measures to promote research and development of basic aeronautical technologies, 4) future development of aircraft to satisfy socio-economic requirements, and 5) measures to improve processing technology and expedite development of technology related to aircraft parts and material. The subcommittee intends to compile a second report by October.

CS0: 4120

SCIENCE AND TECHNOLOGY

BRIEFS

AUSTRALIAN SOLAR PROJECT--Tokyo, 13 Aug--The Agency of Industrial Science and Technology announced Monday that the construction of a solar house and collection of various data had been launched in Australia under the Japan-Australia joint project. The project, called "sunshine project," is being promoted by the agency at Yanchep, 50 kilometers north of Perth city. The solar system being developed will be applicable to standard homes and commercial offices for heating, cooling and supplying hot water. With the support of the agency, an offshoot of the Ministry of International Trade and Industry, the Solar System Development Association of Japan and the Western Australia are handling the project. Operation of the solar system is scheduled for this autumn. It is the first time that Japan is taking part in an overseas solar system undertaking. Of the some 216,000 Australian dollars or some yen 50 million budgeted for the project, Japan will supply some yen 30 million, officials said. [Text] [Tokyo KYODO in English 0801 GMT 13 Aug 79 (W)]

NEW RESOURCE TECHNIQUE--Maegashi, 13 Aug--A local atomic energy research institute has developed what it claims to be an epoch-making technique to change waste resources such as municipal refuses, chaffs and straws into glucose, the material for alcohol, to be possibly used as new energy resources. In defiance of difficulty in producing a large quantity of glucose at low cost, the researchers succeeded in changing cellulose materials into glucose by bringing irradiated cellulose into contact with enzyme fixed with radioactive rays. The new technique has overcome drawbacks of enzyme, which has a low degree of heat tolerance and cannot bear up against repeated use, by mixing cellulose, an enzyme, with some kind of plastic and exposing the enzyme to radioactive rays in the low temperature of minus 80 degrees centigrade to fix it. The granular enzyme made in this method easily contacted with cellulose and its activity remained unchanged after repeated use, the researchers said. [Tokyo KYODO in English 0322 GMT 13 Aug 79 OW]

ANTARCTIC PROJECT POSTPONEMENT--Tokyo, 12 Sep--A Japanese survey team temporarily gave up the scheduled construction of an unmanned observatory in the inner areas of the Antarctic because of a severe cold wave. It has put it off to late October, the spring in the Antarctic, according to a report reaching the education ministry Wednesday. The 20th wintering team planned to build an unmanned observatory at the "Y-100 point," 100 kms northwest of Japan's Mizuho base in mid-August for geological observation and "POLEX" (polar experiment) observation, both started this year under a three-year program. The expedition team plans to start the main project of geological observation from last October. The "POLEX" observation for research on energy exchanges between the polar and temperate zones and their effects on global atmosphere and climate is under way since last February at the Mizuho base, some 300 kms northwest of the Showa base. [Text] [Tokyo KYODO in English 1248 GMT 12 Sep 79 OW]

STEELWORKS GAS TURBINE GENERATOR--Osaka, 6 Sep KYODO--Kawasaki Steel Corp. said Thursday that the output of its gas turbine-generator in steelworks in Chiba Prefecture, east of Tokyo, reached a world record high of 18,500 kilowatts. At the Chiba steelworks, the equipment is installed at two of six blast furnaces and covers about 6 per cent of some 340,000 kilowatts of the annual output at the steelworks. The equipment at the sixth blast furnace was completed in March 1978 and could save yen 1 billion in output cost in fiscal 1978, officials said. The blast furnace gas turbine-generator recovers pressure energy from the blast furnace as electric power using the turbine and generator. [Text] [Tokyo KYODO in English no time given 6 Sep 79 OW]

TEST SPEED RECORD--Hyuga, Miyazaki Pref, 8 Sep KYODO--A Japanese National Railways (JNR) superspeed linear motorcar recorded a speed of 376 kilometers per hour in a test run here Saturday, breaking its own world record of 364 kilometers per hour achieved only last month. The test car momentarily attained its new world speed record during its 2.2 km run in 45 seconds from the starting point on a 7-km rail track at the JNR experiment center. The 10-ton "floating train" was put to seven trial runs Saturday watched by Transport Minister Kinji Moriyama who was the second transport minister to inspect the test center. Moriyama told reporters later that the ministry plans to continue the present tests here for more time and then study requests made by Mie and Richi authorities to build a second test track in their prefectures, where a Chuo Shinkansen bullet train line is planned to be laid. JNR wants the test motorcar to reach a speed of 400 kilometers per hour during the current test season until October 6 and to challenge the final speed goal of 500 kilometers per hour around the yearend. [Text] [Tokyo KYODO in English no time given 8 Sep 79 OW]

'POWERCELL' BATTERY--Osaka, 25 Aug--Kansai Electric Power Co. has started work on development of a "power cell" battery which converts hydrogen into electric energy, company officials said Saturday. Hydrogen would be extracted from liquefied natural gas (LNG) and converted into electricity by chemical actions, the officials said. The proposed battery would conversely apply the theory of electrolysis under which an electrolyte would be decomposed by the action of an electric current passing through it. City gas suppliers and other power utility firms have also gone into similar studies, they said. [Text] [Tokyo KYODO in English 0119 GMT 25 Aug 79 OW]

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